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Power Smart Annual Report 1991–92

BC hydro

A message from the Vice-President of Power Smart

Power Smart, B.C.Hydro's demand side management initiative, is part of a major shift in thinking about energy supply. All across North America, electric utilities are moving away from traditional supply side options as the sole response to load growth. More and more, they are incorporating demand side management as a key component of electricity planning and supply.

Power Smart has grown rapidly and has achieved remarkable success. Now it is time for us to stand back and evaluate our achievements. We must show our customers, regulators and stakeholders that the money we spend provides cost-effective energy.

We are demonstrating our accountability by implementing a rigorous evaluation of program processes and impacts. In addition to helping us gauge our performance, regular measurement and evaluation will guide us in improving the design of future programs.

Recently, Power Smart's mandate has been expanded to encompass not only how much energy is used, but also the time when it is used. This gives us the opportunity to pursue new directions, including load displacement, valley filling and peak shaving. As well, we face the challenge of finding innovative, non-structural solutions to capacity problems in parts of the electric system.

For B.C.Hydro, Power Smart is an important part of an integrated resource plan that incorporates both demand side and supply side options. New generation will be required at some point in the future, and it is important to make the best use of existing and new resources. Power Smart offers great potential for achieving the goal of reliable, least-cost, environmentally sensitive electric service. It also offers flexibility. We can react quickly to load forecasts and tailor our contributions to the resource needs of the province. By making energy savings available in small increments, we can match the profile of the load growth itself.

Veikko Kammonen, Vice-President Power Smart

Power Smart helps individuals and corporations save money, but its benefits don't stop there. It also provides a larger benefit to society through delaying the costs and the environmental impacts of new power facilities. For all these reasons, I believe that demand side management will play an ever-increasing role in the North American electric energy picture.

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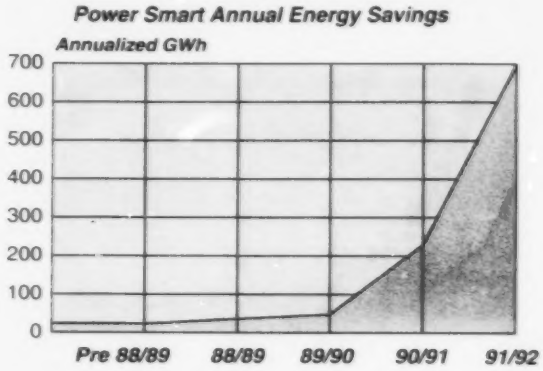
The annual report card

Power Smart can look back on 1991-92 as a year of solid accomplishment.

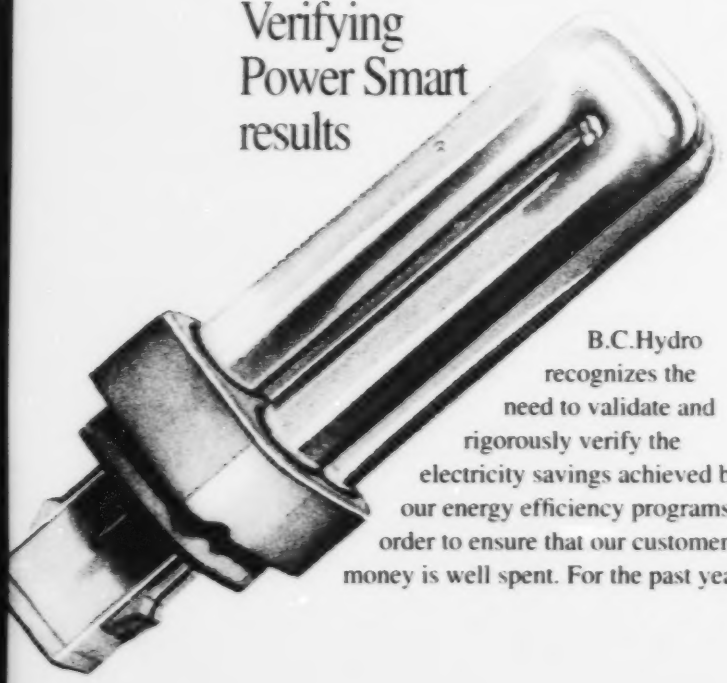
Energy savings in this fiscal year were 454 million kilowatt-hours, over twice as much as in the previous year. This brings Power Smart's total to 724 million kilowatt-hours—enough electricity to serve more than 70,000 homes.

Power Smart is ahead of schedule in terms of energy savings. Several programs exceeded their targets for the year. For example, Energy-Efficient Lighting more than doubled its targeted savings, and the Electric to Gas Water Heater program for residential customers exceeded its goal by over 80 per cent.

"To a large extent, we owe our success to enthusiastic public acceptance of Power Smart programs," says vice-president Veikko Kammonen. "We look forward to building on our accomplishments as we meet projected targets and contribute to B.C.Hydro's future energy mix."



Verifying Power Smart results



B.C.Hydro recognizes the need to validate and rigorously verify the electricity savings achieved by our energy efficiency programs in order to ensure that our customers' money is well spent. For the past year, Power Smart has been working closely with a multi-disciplinary team to strengthen and refine program planning, monitoring and evaluation. The E-team, as it is called, incorporates all the major stakeholder groups within Hydro, including Finance, Resource Management, Customer Services and Power Smart.

"The goal of the evaluation process is to make sure that Power Smart has the best programs in place and is operating them in the most effective manner," says Mickey Rockwell, Planning and Evaluation manager.

And Power Smart is producing cost-effective savings. The planned average cost per kilowatt-hour works out to 2.6 cents, levelized over 20 years, compared with 4.2 cents for new electricity supply.

Collaborative Committee works together to assess conservation potential

The Collaborative Committee was formed in February 1991 with the participation of 13 members from 34 organizations representing commercial, industrial and residential interests, environmental organizations, local governments and native peoples in the province, as well as West Kootenay Power Ltd. and B.C.Hydro.

The Collaborative Committee oversees the conduct of the 1991 Conservation Potential Review. The purpose of the Review is to estimate the potential for savings or reductions in electricity use in B.C. to the year 2010. This will help B.C.Hydro and West Kootenay Power make better resource planning decisions in the future.

The first phase of the Review, nearing completion, will determine the unconstrained potential for electricity savings that could be achieved through technological and behavioural changes, and will assess what proportion of these are economically feasible when compared with the cost of alternative supplies of new electricity.

The second phase, to be completed in early 1993, will estimate the realistically achievable ranges of potential, depending on customers' willingness to conserve and to embrace energy-efficient technology.

Training for business success

Training for Power Smart trade allies in good energy efficiency practices is flourishing.

During 1991-92, hundreds of contractors and B.C.Hydro employees attended sessions on Power Smart products, energy-saving technologies and techniques, and Power Smart programs. Contractors and retailers learned how to take advantage of Power Smart opportunities to improve their business.

Here is a summary of training highlights:

• *Power Smart Home Improvements* has trained over 300 contractors and more than 125 employees in Prince George, Vernon, Victoria, Nanaimo and the Lower Mainland.

• *Pumping Profits* held 21 training sessions for 92 operating engineers, electrical engineers and pump suppliers.

• *Efficient Compressed Air* put on nine workshops for a total of 180 participants in B.C.

Compact fluorescent lighting products were featured at product knowledge sessions around the province.

Four other sessions, attended by 175 people, were held in the Pacific Northwest.

• *Quality Plus Homes* provided training in energy-efficient construction practices to about 80 builders and an equal number of ventilation installers.

• *New Home Lighting and Energy-Efficient Lighting* held a series of product knowledge sessions for retailers, wholesalers and contractors throughout the province.

Home renovations yield energy savings

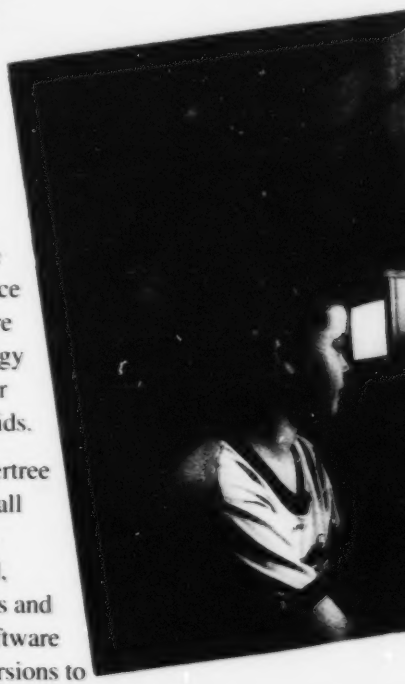
Residential Power Smart programs made a strong contribution to overall electricity savings for 1991-92, providing a total of 115 million kilowatt-hours of electricity. One of these programs, Power Smart Home Improvements, has positioned itself as the leading energy-saving home renovation program in North America. And it put in a strong performance at home in B.C., with energy savings of 8.5 million kilowatt-hours for the year.

In the Home Improvements program, energy auditors in selected areas of the province evaluate the potential for energy savings in electrically heated homes, then recommend renovation measures, which are carried out by registered general contractors. In 1991-92 the nine program auditors conducted a total of 2,932 energy audits. Of these, 1,495 homeowners went on to have the improvements done—a sales rate of nearly 50 per cent. The average renovation cost about $4,350, which translates into considerable business for the 43 contractors registered with the program, as well as for local suppliers.

Home renovations have resulted in energy savings of 8.5 million kilowatt-hours for the year.

"Home Improvements is based on the concept of the house as an integrated system," says program manager Jay Lewis. "That way, our customers get not only energy savings, but increased comfort and a healthier indoor environment as well."

Students design Power Smart computer game



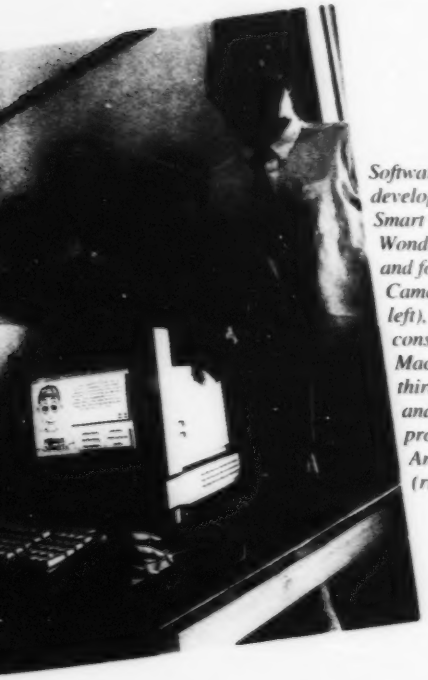
When Power Smart Education program manager Andrew Cole was planning to produce an educational software package on home energy effciency, he turned for help to the experts—kids.

Students at Wondertree Learning Centre, a small independent school in Vancouver's West End, designed the characters and graphics, wrote the software and tested different versions to refine the flow of the computer game. "The students created with their peers in mind," says Cole. "Because they were partners in the design, the game is understandable and enjoyable to students in grades 8 to 10."

The game measures possible efficiency upgrades in a typical house and determines the costs and benefits of each option. Students borrow $100 at the start of the game and try for

the greatest return on this investment through conservation over five years. By signing an actual energy efficiency agreement with their parents, students in grade 8 could possibly save between $1,000 and $2,000 towards the cost of university tuition by the time they graduate from high school.

The Power Smart Game has been shipped to over 700 teachers across the province, who may freely copy it for educational purposes.



Software team that developed the Power Smart Game included Wondertree principal and founder Brent Cameron (at rear, left), programming consultant Rob MacDuff (at rear, third from right) and Hydro program manager Andrew Cole (right).

Commercial programs achieve largest savings

The commercial sector recorded the greatest energy savings for Power Smart in 1991-92. New energy-efficient construction, renovations of existing buildings and lighting upgrades all contributed to a strong performance. Some highlights of the year:

Dynapro Systems Inc.'s new development and manufacturing facility

• *Energy-Efficient Lighting* recorded savings of 178 million kilowatt-hours. This was more than double its target and represents 39 per cent of Power Smart's total energy savings for the year.

• *New Building Design* achieved savings of 27.8 million kilowatt-hours for the year. One company that took advantage of the program, Dynapro Systems Inc., will save 526,000 kilowatt-hours a year at its new development and manufacturing facility on Annacis Island. This is enough power for 52 new B.C. homes, and will save Dynapro $26,000 a year in energy costs.

• *Building Improvements* saved a total of 23.4 million kilowatt-hours. In one example, Vancouver City Savings reduced its energy use by an estimated 60 per cent, worth over $57,000 annually, by retrofitting its head office building with energy-efficient technology.

• To date, 142 communities, well over 90 per cent of the province's municipalities and regional districts, have adopted an Energy Efficiency Policy.

Trade allies help boost Power Smart awareness

Every October, Power Smart Month focuses attention on energy-saving opportunities across the province. Power Smart advertising is increased, retailers promote energy-efficient products, students take part in energy education activities and cities engage in friendly competitions to save the most energy. The highlight of the month-long campaign is Power Smart Night, when everyone is asked to turn off unnecessary lights.

The focus works. This year, 80 per cent of British Columbians surveyed were aware of Power Smart Night, with 71 per cent of those households stating that they participated. And the results aren't just temporary. Survey results indicate that by 1991-92 year-end, awareness of B.C.Hydro's efforts to encourage energy efficiency at home had reached 92 per cent, up from 80 per cent in January 1990.

This success has been achieved with considerable support from Power Smart's trade allies. During Power Smart Month 1991, retailers distributed throughout B.C. an estimated 20 million advertising flyers carrying the Power Smart logo and promoting energy-efficient products. Victoria area retailers participated in a sales contest, and sold more than 800 Power Smart refrigerators in three months. Hydro supports these efforts all year round with rebates, promotional signage identifying Power Smart products and a toll-free information line.

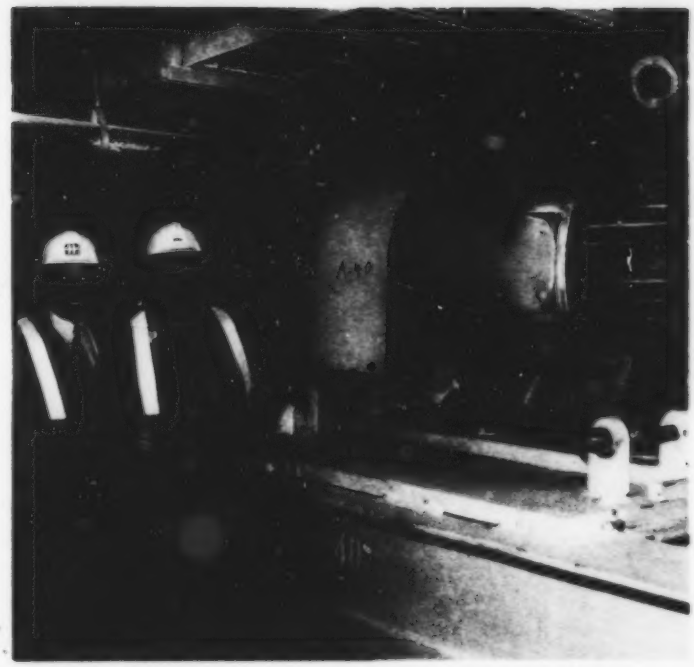
Since Power Smart was launched in 1989, the range of energy-efficient products has increased dramatically. "The visibility of Power Smart products is high because retailers feature and promote them at every opportunity," says Bob Crockett, Power Smart marketing manager. "It's a partnership that works, both for us and for our trade allies."

Fourteen Victoria area retailers sold 44% of all energy-efficient refrigerators purchased in the area during a three-month-long contest.

Industrial awards recognize energy-efficient companies

Albright and Wilson, an industrial producer of sodium chlorate, is the 1992 provincial winner of the Power Smart Industrial Energy Efficiency Award. Regional winners are Primex Forest Products in the Lower Mainland, Crestbrook Forest Industries Ltd. in the South Interior, and Lignum Ltd. in the Northern region. Dairyland Foods received honourable mention.

These awards, presented annually, recognize excellence in a broad range of energy-saving measures.



Lower Mainland regional award winner, Primex Forest Products, installed high-efficiency motors throughout the sawmill.

Albright and Wilson has been producing sodium chlorate—an important ingredient in the bleaching of pulp and paper—at its North Vancouver plant since 1957. While increasing production capacity by 84 per cent, the company reduced electricity use by 28 per cent per unit of product and achieved significant environmental benefits.

Primex Forest Products' Acorn division sawmill installed high-efficiency motors, adjustable speed drives and synchronous belts. Primex significantly increased production while reducing electricity consumption by 11 per cent.

Lignum spent its entire capital budget for the year on Power Smart improvements. By upgrading its compressed air system and lumber drying kiln and by installing synchronous belts, high-efficiency motors and efficient gear reducers, the sawmill lowered its electricity use by five per cent.

Crestbrook Forest Industries modernized three sawmills, reducing total electricity consumption by five per cent. Dairyland upgraded its refrigeration and compressed air systems and installed high-efficiency motors and energy-efficient lighting, resulting in electricity savings of 11 per cent.

"These companies are leading the way in adopting Power Smart technology," says Grad Ilic, manager of Industrial Energy Management. "Not only are they saving electricity and money, they're also demonstrating that the energy efficiency ethic is good for business."

Bonus Partners rewards energy-saving ideas

Power Smart is reaching out to industrial electricity users—and is paying them for their energy-saving ideas. The Bonus Partners program offers industrial customers financial assistance to implement customized, cost-effective energy-saving measures in their plants. In less than two years of operation, the program has saved 40 million kilowatt-hours of electricity a year.

In one recent example, the Okanagan North Growers Cooperative installed a computer monitoring and control system that monitors fruit storage rooms and automatically adjusts the temperature and other factors to preserve the best fruit quality. The new system has resulted in a 40 per cent reduction in energy consumption, or electricity savings of 708,000 kilowatt-hours a year—enough to supply 70 new B.C. homes.

Other Bonus Partners successes have ranged from the small—installing an energy-efficient low-loss transformer in place of a standard efficiency transformer, for annual energy savings of 32,500 kilowatt-hours, to the enormous—replacing a hydraulic debarker with a mechanical debarker, for yearly energy savings of 10 million kilowatt-hours. In addition to the energy savings, many of the measures bring further benefits such as extended equipment life and reduced maintenance costs.

"Our industrial customers know their own plants and equipment, and are most familiar with the best opportunities for saving energy," says program manager Jon Hessen. "Bonus Partners is a way to support their good ideas."

Lignum Ltd., one of this year's Industrial Award winners, received a Bonus Partners rebate for installing synchronous belts on the sawmill's dust collecting fan.

POWER SMART

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